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On the distribution, biology and ecology of amphibians and reptiles in the Derventski Heights and the Sakar Mountain, South-East Bulgaria

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Introduction

Although much information on the distribution of the Bulgarian herpetofauna has been accumulated since the end of the nineteenth and the beginning of the twentieth century there are still some poorly explored regions. This is also true for the regions of the Sakar Mountain and the Derventski Heights, both of which have long been overlooked by the Bulgarian and foreign herpetologists. Only recently, CHLEBICKI (1985) provided some new information on the distribution and status of some reptiles and amphibians in Sakar.

The present paper is devoted to the herpetological investigations carried out in the Derventski Heights and the Sakar Mountain in the period of 1989 - 1992. The explored territory belongs to Bourgas and Haskovo districts. The following settlements and their vicinities were visited: the **Sakar Mountain**: Radovetz Village (UTM: MG 54), Ustrem Village (UTM: MG 55), Mramor Village (UTM: MG 55); the **Derventski Heights**: Lesovo Village (UTM: MG 64), Lesovo Mine (UTM: MG 64), Melnitza Village (UTM: MG 65), Voden Village (UTM: MG 95), Kraynovo Village (UTM: MG 85), Malko Sharkovo Village (UTM: MG 86) and Golyam Dervent Village (UTM: MG 74) (Fig. 1).

Material and methods

The main part of the scientific investigations were carried out by the author, the rest are contributions by Georgi Seizov, tutor of Biology in Jambol and chief of the local Ornitological Club, Borislav Borisov, zoologist at the Regional Inspectorate of the Ministry of Environment and Waters in Haskovo, and Boyan Petrov, from the National Museum of Natural History in Sofia. Eight expeditions

were organized mainly during the months of April, May and September. The main part of the studies were carried out during the day and only sporadically during the night. Most of the amphibians and reptiles were caught or found dead and then preserved in ethanol and some were only observed. A few of the caught specimens are kept now in the collections of the National Museum of Natural History - Sofia.

Landscape, climate and vegetation

The region is situated between the Strandzha Mountain and the Eastern Rhodopes Mountain and comprises hilly and lowland types of landscape. To the south the Derventski Heights and the Sakar Mountain reach down the Bulgarian - Turkish frontier. Most of the territory consists of agricultural and urban land. The highest hill of the Derventski Heights is Gyurgen Bair Peak (555 m a.s.l.). The highest point of the Sakar Mountain is Vishegrad Peak (856 m a.s.l.). The climate is Submediterranean, characterized by warm and mild winters, and hot and dry summers. The maximum of the precipitation occurs in December, January and February. The vegetation is predominantly of xeroterm type such as the broad-leaved mixed *Quercetum-Fraxinus* association. It is the commonest forest type in

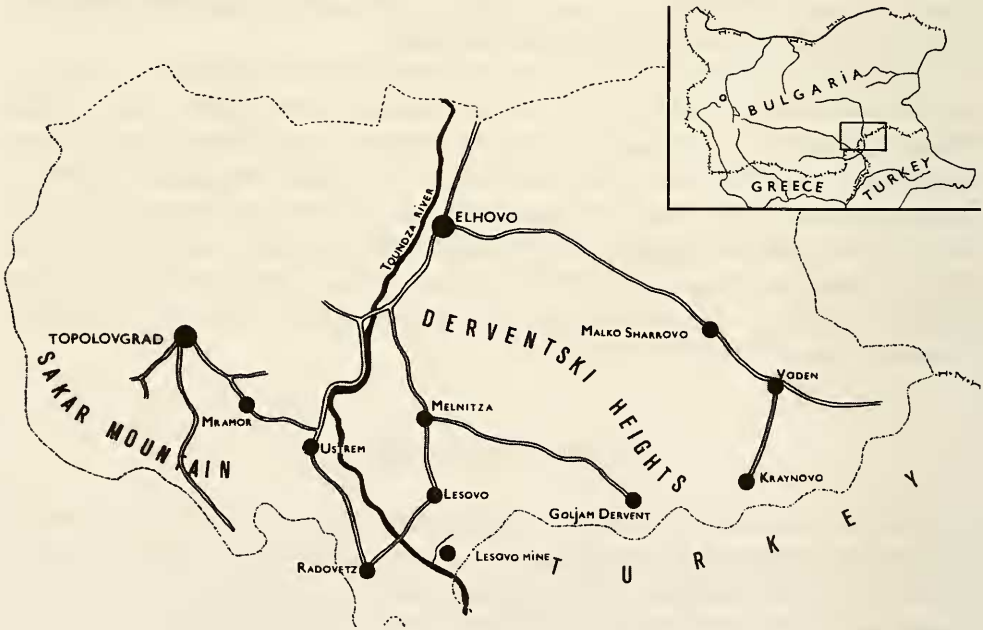

Fig. 1. Map of the investigated regions

the region. The only mesophylic forests are located along the Tundza River and in a short stripe along the frontier. The open landscapes are covered mainly by *Paliurus spina-cristi* shrubs and various herbs.

List of species

Amphibia

***Triturus* superspecies *cristatus* (Laurenti, 1768)**

Localities. ***Elhovo District:*** one specimen, Kraynovo, a nameless pot hole, 23.05.1991, P. Stoev leg.; one specimen, Lesovo, beneath a stone, 14.05.1990, P. Stoev leg.

Remarks. The crested newt is a comparatively rare species in the studied regions. This is chiefly due to the general lack of marches, pools, puddles and other habitats, suitable for its survival and to the comparatively low humidity of the investigated regions.

***Triturus vulgaris* (Linnaeus, 1758)**

Localities. ***Elhovo District:*** two females and one male, Lesovo, in a small river flowing into the Toundzha River, 03.04.1991, P. Stoev leg.; several specimens, same locality, in a small puddle, P. Stoev observ.; one specimen, same locality, in an artificial mine gallery, April, 1992, P. Stoev leg.; two specimens, Voden, Samardaala Pot hole, 11.10.1992, G. Seizov leg.

Remarks. In the catalogue of Beshkov and Beron (1964) T. *vulgaris* is mentioned as widely spread in the country, with the exception of the Strandzha and Sakar Mountains. Latter on, Chlebicki (1985) reported the smooth newt for Sakar. On the basis of our observations in the Derventski Heights, although it has not been discovered yet, it is quite possible to presume that its range includes the Strandzha Mountain as well. Only very intensive collection work can settle the problem.

***Pelobates syriacus balcanicus* (Karaman, 1928)**

Localities. ***Elhovo District:*** one specimen, Lesovo, near the Toundzha River in a rainy night, 5.09.1990, P. Stoev leg.

Remarks. Recorded only once, a wider distribution of this interesting animal can be expected. Scarcity is solely due to its specific behavior and night activity.

***Bufo bufo spinosus* (Daudin, 1803)**

Localities. ***Elhovo District:*** two copulating specimens, Lesovo, in the Toundzha River, 1.04.1989, P. Stoev observ.; one specimen, same locality, 14.05.1990, P. Stoev leg.; numerous specimens, same locality, 1-6.04.1991, P.

Stoev. observ.; one specimen, Lesovo, a mine gallery, 09.04.1992, P. Stoev leg.; two females, one adult male and three juveniles, Melnitza, Dranchi Doupka Pot hole, 7.04.1991, P. Stoev, G. Seizov & B. Borisov leg.; one specimen, Melnitza, Karaburnu Pot hole, 3.04.1992, P. Stoev leg.; two specimens, Kraynovo, a nameless pot hole, 23.05.1991, P. Stoev leg.; one specimen, Kraynovo, Dalbokata Doupka Cave, 12.09.1992, P. Stoev, G. Seizov & B. Borisov leg.

Remarks. Despite the great number of observed specimens the subspecific status of this toad has not been examined yet, but because of its huge length and fairly big and oval parotid glands it can be expected to belong to *spinosus*, a subspecies which has already been recorded for Bulgaria and seems to have replaced the nominate one in the southern and lowland regions.

***Bufo viridis* (Laurenti, 1768)**

Localities. ***Topolovgrad District:*** one specimen, Ustrem, Tjasnata Propast Pot hole, 30.03. 1992, P. Stoev leg.; one specimen, Mramor, Mladezhkata Pot hole, 31.03.1992, P. Stoev & G. Seizov leg.

Remarks. It's a fairly common toad in the investigated regions. It is often found in human settlements and in pot holes were it has fallen accidentally.

***Hyla arborea* (Linnaeus, 1758)**

Remarks. It is one of the commonest frogs in the investigated regions. *Hyla arborea* was often found around the water containers of the village of Lesovo and the Toundzha River, particularly during the spring months.

***Rana ridibunda* Pallas, 1771**

Remarks. It is the most common amphibian species, spread in almost every water container in the explored regions. It was discovered in the Toundza River, around the Lesovo Mine and the villages of Lesovo, Melnitza and Goljam Dervent.

***Rana dalmatina* Bonaparte, 1840**

Localities. ***Elhovo District:*** one specimen, Lesovo, 3.04.1989, P. Stoev leg.; one specimen, Melnitza, Dranchi Doupka Pot hole, 7.04.1991, P. Stoev, G. Seizov & B. Borisov observ.; two specimens, same locality, Karaburnu Pot hole, 3.04.1992, P. Stoev leg.; two specimens, Kraynovo, a nameless pot hole, 23.05.1991, P. Stoev leg.

Remarks. It is a fairly common species in the investigated territory.

Reptilia

***Testudo hermanni* Gmelin, 1789**

Localities. This turtle was recorded several times from the surroundings of Lesovo and Radovetz. In 1990 fourteen specimens were captured in those places

and one specimen was recorded from the Bulgarian-Turkish frontier, between Lesovo and Goljam Dervent.

Remarks. It is a fairly common species in the investigated regions.

***Testudo graeca ibera* Pallas, 1814**

Localities. *Testudo graeca ibera* is a common species in the investigated regions, and is regularly met in different seasons and years in the surroundings of Lesovo, Goljam Dervent and Radovetz.

Remarks. No special statistics has been done to clarify which is the predominant turtle in the Sakar and the Derventski Heights but I tend to believe that both species are represented in almost equal proportions.

***Emys orbicularis* (Linnaeus, 1758)**

Localities. ***Elhovo District:*** the Toundzha River; a small river flowing into the Toundzha River, 4-12.09.1990, P. Stoev leg.; one specimen, between Goljam Dervent and Lesovo, 28.04.1991, P. Stoev & G. Seizov leg.

Remarks. Although sporadically discovered, undoubtedly *Emys orbicularis* is quite wide spread in the investigated regions.

***Mauremys caspica rivulata* (Valenciennes, 1833)**

Localities. ***Elhovo District:*** numerous specimens of both sexes, Lesovo, a small river flowing into the Toundzha River (UTM: MG: 64), P. Stoev observ. & leg.

Remarks. This species has already been reported for the Sakar Mountain by Chlebicki (1985). The present find is extending its range eastwards thus connecting the records from Eastern Rhodopes with those from the Black Sea cost. The small river flowing into the Toundza River is inhabited by both *Emys orbicularis* and *Mauremys caspica rivulata*, the latter being nearly six times more abundant. It can probable be found in the Toundzha River as well.

***Cyrtodactylus kotschyi danilewskii* (Strauch, 1887)**

Localities. ***Elhovo District:*** one specimen, Lesovo, 1.04.1991, P. Stoev leg.; one specimen, Lesovo Mine, 2.04.1991, P. Stoev observ.; one specimen, Melnitza, 18.09.1992, P. Stoev & B. Petrov observ.

Remarks. It has already been discovered in the town of Elhovo. The present localities only extend its range some 30 km. southwards. Since one of the localities is situated some 3-4 km from the Bulgarian-Turkish frontier it may also be present in the settlements on the Turkish side. Its local name is "dazhdovnik" or "dazhdovniche".

***Pseudopus apodus thracius* (Obst, 1978)**

Localities. ***Elhovo District:*** several adults and two juvenile specimens, Lesovo, 1-10.04.1989, P. Stoev leg. & observ.; three specimens, same locality, 14-

15.05.1990, P. Stoev leg.; seven specimens, same locality, 1-06.04.1991, P. Stoev leg.; numerous specimens, same locality, 1-12.04. 1992, P. Stoev leg. & observ.; two specimens, Goljam Dervent, 10.05.1991, P. Stoev observ.; one specimen, Melnitza, Karaburnu Pot hole, 3.04.1992, P. Stoev leg.; ***Topolovgrad District:*** one specimen, Radovetz, 21.09.1992, P. Stoev leg.; one specimen, Ustrem, "Sveta Troitza" Monastery, 27.04.1991, P. Stoev & G. Seizov leg.; one juvenile specimen, Mramor, Mladezhka Pot hole, 31.03.1992, P. Stoev & G. Seizov leg.

Remarks. It is a fairly common animal for the whole investigated territory, although in some urban and agricultural lands is quite reduced in number. It was found to be feeding on snails and once on a small rodent, resembling very much the migratory hamster *Cricetulus migratorius*. Its local name is "kyoralan" and "slepok".

***Ablepharus kitaibelii* Bibron & Bory, 1833**

Localities. ***Elhovo District:*** one specimen, Kraynovo, a nameless pot hole, 23.05.1991, P. Stoev leg.

Remarks. Although *Ablepharus kitaibelii stepaneki* Fuhn, 1970 is the only subspecies recorded from the whole territory of Bulgaria, I can not be certain whether my specimen really belongs to it, because of lack of accurate determination. In the explored regions *Ablephaurus kitaibeli* was found only once but one might expect it to be more widely spread.

***Lacerta trilineata* Bedriaga, 1886**

Localities. It was discovered practically everywhere in the regions, most frequently occurring in dry meadows covered with *Paliurus spina-cristi* shrubs. My finds come from the surroundings of Lesovo Mine and the villages of Lesovo, Melnitza, Radovetz and Goljam Dervent.

Remarks. A fairly common species in the studied regions. Its subspecific status is yet to be examined.

***Lacerta viridis* (Laurenti, 1768)**

Localities. ***Topolovgrad District:*** one specimen, Mramor, Dranchi Doupka Pot hole, 29.03.1992, P. Stoev leg.

Remarks. Although it has been reported from Sakar by CHLEBICKI (1985) I cannot be certain whether I have really come across this species during my trips in the investigated regions. If the species occurs there, it seems less numerous than its sibling species *Lacerta trilineata*. The only record that I attribute to *viridis* is that of the Dranchi Doupka Pot hole. Much more profound work is necessary in order to establish its present distribution in the Sakar Mountain and the Derventski Heights.

***Podarcis taurica* (Pallas, 1814)**

Localities. A fairly common species in the studied regions, regularly found in the surroundings of the villages of Radovetz, Lesovo and Melnitza.

Remarks. Together with *Lacerta trilineata* it is one of the most frequently observed lizard in the Derventski Heights and the Sakar Mountain. Its is mostly found in dry meadows covered with bushes of *Paliurus spina-cristi* and isolated trees.

***Eryx jaculus* (Linnaeus, 1758)**

Localities. ***Elhovo District:*** one specimen, Lesovo Mine, 06.09.1988, B. Borisov leg.; one specimen, same locality, April, 1990, G. Seizov leg.; one juvenile specimen, Length - 22 sm., same locality, 17-17:30 h, 15.05.1990, P. Stoev leg.; one juvenile specimen, Length - 12,2 sm., same locality, 16.05.1990, P. Stoev leg.; one adult specimen, Length - 46 sm., same locality, 8.09.1992, P. Stoev leg.

Remarks. In the period of 1988-1992 five specimens were encountered in the explored regions. All of them come from the surroundings of the Lesovo Mine, which is the only locality of *jaculus* known up to now from the Derventski Heights. It may occur in similar habitats in the Sakar Mountain as well.

***Typhlops vermicularis* Merrem, 1820**

Localities. ***Elhovo District:*** one specimen, Lesovo, beneath a stone, 18.05.1990, P. Stoev leg.

Remarks. It is the only record of *T. vermicularis* in the region of the Strandzha Mountain - Derventski Heights. The nearest records are from the valley of Maritza, situated approximately 40 km westward from our find. *T. vermicularis* is obviously a rare species in the explored regions, but a more systematic research will certainly result in extension of its range in South-east Bulgaria.

***Coluber caspius* Gmelin, 1789**

Localities. ***Elhovo District:*** three adult specimens, one of which is 166 cm long, Lesovo Mine, 1-10.04.1989, P. Stoev leg. & observ.; two specimens, same locality, 14-15.05.1990, P. Stoev observ.; one juvenile specimen, Lesovo, 19.09.1992, P. Stoev leg.; one specimen, between Lesovo and Goljam Dervent, 28.04.1991, P. Stoev leg.; ***Topolovgrad District:*** one specimen, Radovetz, 21.09.1992, B. Petrov leg.

Remarks. It is a fairly common snake in the investigated regions.

***Coluber najadum dahlii* Schinz, 1833**

Localities. ***Elhovo District:*** one juvenile specimen, Lesovo Mine, April, 1990, B. Borisov & G. Seizov leg.; one adult specimen, same locality, 15.05.1990, P. Stoev observ.

Remarks. *C. najadum* is a Mediterranean species whose northern border of distribution passes through the country. It is fairly common in the Struma Valley, south of the town of Dupnitza, and in the Eastern Rhodopes, and it is rarely recorded from the central and western regions of the Rhodopes. This record from

the Derventski Heights traces out the easternmost border of its distribution in Bulgaria. The old records of *najadum* from the Black sea coast are probably due to its misidentification as some other species *Coluber rubriceps* (Venzmer, 1919) is known to occur there (Vl. Beschkov, personal information).

***Elaphe longissima* (Laurenti, 1768)**

Localities. ***Elhovo District:*** two juvenile specimens, Lesovo Mine, 1-10.04.1989, P. Stoev leg.; one specimen, same locality, 18.05.1990, P. Stoev leg.; one specimen, same locality, 1-12.04.1992, P. Stoev leg.

Remarks. *E. longissima* does not seem to be a rare species in the Derventski Heights and the Sakar Mountain. Since it is primarily connected with the mesophylous broad-leaved forests, a more profound research of these habitats will undoubtedly prove its wider distribution in the investigated regions.

***Elaphe quatuorlineata sauromates* Pallas, 1814**

Localities. ***Elhovo District:*** one specimen, Length - 140 cm, between Lesovo and Goljam Dervent, 28.04.1991, P. Stoev leg.

Remarks. Both subspecies of *E. quatuorlineata*, the nominal and *sauromates*, are known from Bulgaria. Although widely spread in the country in the beginning of the twentieth century, due to the expansion of farming, and particulary the transformation of desolate area into agricultural lands, this very beautiful snake has become seriously threatened by extinction. The National Museum of Natural History in Sofia keeps numerous specimens collected from Dobroudja, Thracia and other regions of Bulgaria, where this snake is now either completely exterminated or nearly extinct. The regions of the Strandzha and Sakar Mountains and the Derventski Heights are probably the last sanctuaries of *E. quatuorlineata sauromates* in Bulgaria, as the Struma Valley is for the nominal subspecies.

***Malpolon monspessulanus insignitus* (Geoffroy, 1827)**

Localities. ***Elhovo District:*** one specimen, between Kraynovo and Goljam Dervent near Gyurgen Bair Peak, 500 m a.s.l., 10.05.1991, P. Stoev leg.

Remarks. Only one specimen of this snake has been caught, but undoubtedly it is much more numerous, since it has also been discovered in the Strandzha Mountain and the Eastern Rhodopes.

***Natrix tessellata* (Laurenti, 1768)**

Localities. ***Elhovo District:*** one specimen, Melnitza, Starata Cave, 3.04.1992, P. Stoev & G. Seizov observ.; several times in different seasons and years, Lesovo Mine, near the Toundzha River, P. Stoev observ.

Remarks. A fairly common species in the investigated regions.

***Natrix natrix natrix* (Linnaeus, 1758)**

Localities. ***Elhovo District:*** one specimen, Lesovo Mine, 6.04.1991, P. Stoev leg.

***Natrix natrix persa* (Pallas, 1814)**

Localities. ***Elhovo District:*** six specimens, Lesovo Mine, 14.05.1990, P. Stoev leg.; one specimen, same locality, 1.04.1992, P. Stoev leg.

Remarks. Both subspecies of *Natrix natrix* are known from the studied regions, but it seems that *persa* is the predominant one. A more profound research will settle the question.

***Vipera ammodytes meridionalis* Boulenger, 1903**

Localities. ***Elhovo District:*** one specimen, Lesovo Mine, 1-10.04.1989, P. Stoev leg.; two specimens, same locality, 14-16.05.1990, P. Stoev leg. & observ.; one juvenile and one adult specimens, same locality, 19-21.09.1992, P. Stoev leg. & observ.; three juvenile specimens and one adult, Malko Sharkovo, 09.05.1991, P. Stoev observ.; two juvenile specimens, Melnitza, Karaburnu Pot hole, 3.04.1992, P. Stoev leg.; one specimen, between Lesovo and Goljam Dervent, 9.09.1992, P. Stoev observ.; one specimen, Voden, 11.09.1992, P. Stoev observ.; ***Topolovgrad District:*** one specimen, Radovetz, 1-10.04.1989, P. Stoev observ.; one specimen, same locality, 12.04.1992, P. Stoev observ.

Remarks. Since 1990 *Vipera ammodytes* has been gradually destroyed by uncontrolled catching for the purposes of private farms, producing venom. Its populations in the explored regions have been seriously endangered by the local hunters of snakes but fortunately this "venomous" mania ended with only few enterprises left. Now, the populations of *V. ammodytes* in the regions of the Sakar Mountain and the Derventski Heights are probably slightly increasing.

Conclusions

The current research on the amphibians and reptiles in the Sakar Mountain and the Derventski Heights has considerably enriched our knowledge of the distribution of the herpetofauna in Bulgaria. Along with the Kresna Gorge, the Southern part of the Black Sea Coast and the Eastern Rhodopes Mountain, the region of the Toundzha River, the Derventski Heights and the Sakar Mountain is one of the richest regions in terms of herpetological diversity. Eight species of Amphibia and twenty one species and subspecies of Reptilia were found to occur there, which constitutes 55 % of the Bulgarian herpetofauna. Five other species (*Salamandra salamandra, Bombina variegata, Angius fragilis, Lacerta praticola* and *Coronella austriaca*) although not discovered during these trips are quite widely distributed in the country and will probably be discovered in the investigated territory in the future.

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Върху разпространението, биологията и екологията на земноводните и влечугите на Дервентските възвишения и Сакар планина

Павел СТОЕВ

(Р е з ю м е)

Обобщават се наблюденията на автора върху разпространението и отчасти биологията и екологията на 29 вида и подвида земноводни и влечуги, установени в района на Дервентски възвишения и Сакар планина през периода 1989-1992 г. Тя се явява първото по рода си комплексно изследване на херпетофауната на посочените райони, показващи видово богатство, сравнимо само с това на Кресненското дефиле, Южното Черноморие и Източните Родопи. Интерес представлява установяването на най-източното находище на *Coluber najadum dahlii* в България, на първото находище на *Triturus vulgaris* в района на Странджа-Сакар, както и намирането на няколко редки видове - *Pelobates syriacus balcanicus, Mauremys caspica rivulata, Eryx jaculus, Typhlops vermicularis* и *Elaphe quatuorlineata sauromates*. Възможно е да бъдат намерени и пет други вида - *Salamandra salamandra, Bombina variegata, Angius fragilis, Lacerta praticola* и *Coronella austriaca*, които не са установени до момента.